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THE PROOF!

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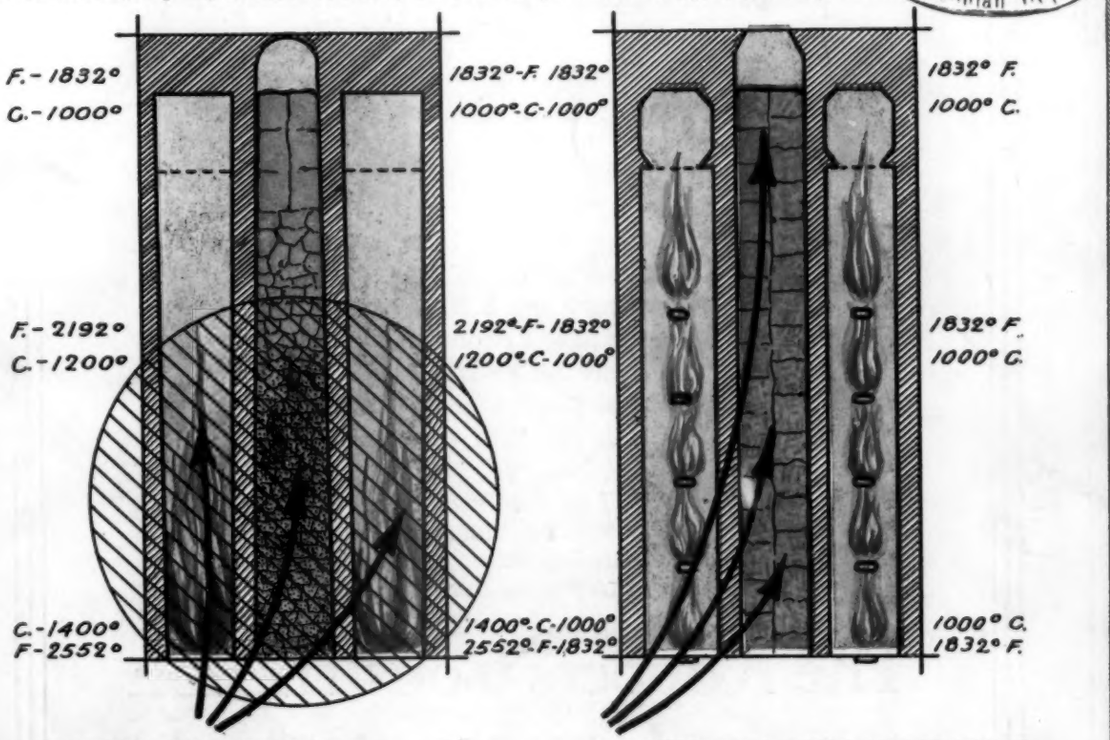

THE COMMON ONE-FLAME METHOD

Note how combustion is practically limited to lower 5′ to 6′ 6″, and only occasional tips of flame reach 7′ 6″.

—*and then*—

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Advertising Index, page 30 Index to Contents, page 4

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A contract has been awarded to the By-Product Coke Company of Canada, Limited, Canadian subsidiary of The Koppers Company, for the design and erection of the plant. The installation will consist of 59 Becker Type Ovens and 4 Koppers Gas Producers, complete equipment for by-product recovery and a Koppers coke handling plant—Naphthalene Removal Apparatus will be included and alterations will be made to adapt the existing liquid purification equipment to the use of the sulphur recovery process.

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Designers and Builders of
BY-PRODUCT COKE AND GAS PLANTS

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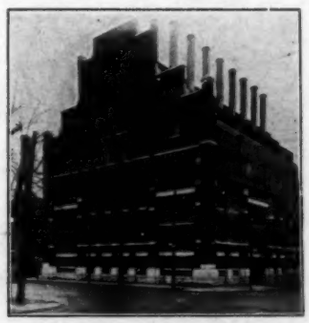
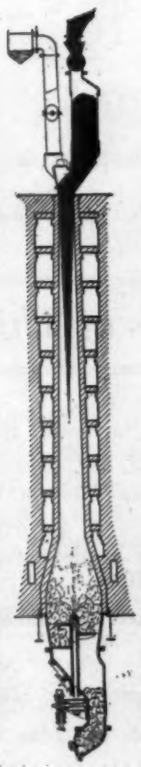
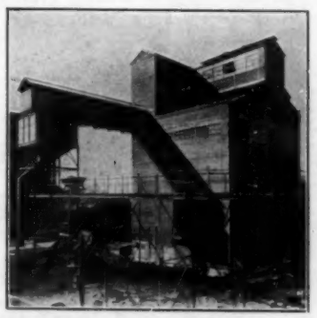
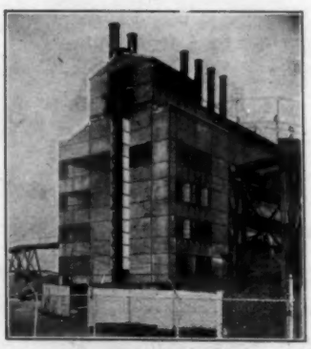


Toronto, Ont.
5,000,000 cu. ft. per day





Fargo, N. D.
800,000 cu. ft. per day



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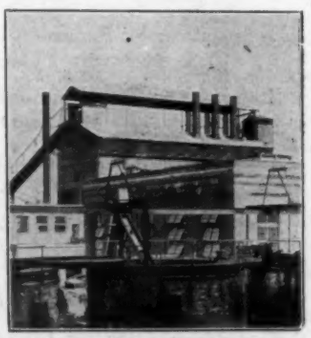

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SIXTY-SEVENTH YEAR

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AMERICAN
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Established 1859— Pioneer of the Gas Industry

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Regulation of Pressure *

With particular reference to large quantities of natural gas

A. J. Kerr

Representative, Pittsburgh Equitable Meter Company, Tulsa, Okla.

THE purpose of this paper is to give a general outline of some of the most important points covering the maintenance and operating characteristics of high and low pressure regulators.

Pressures are controlled by a number of different systems. The most important must be automatic in action. Numerous devices have been designed to perform this service and all can be classed under the general heading of regulators. According to L. S. Lichty in his book "Natural Gas," "the duty of a gas regulator is to take gas as it is delivered to it at any pressure, reduce the pressure to that pressure desired, within very close limits." In a gas system, well pressures and suitable pressures for efficient transportation in pipe lines must be reduced to a lower point for economical and safe utilization.

Early Practice Haphazard

In the early gas fields of Pennsylvania pipe lines were run to houses and communities with very little thought given to its value or to its efficient use. It was burned, ordinarily, in an open grate or coal stove without proper burners. We are thankful for the rapid development of this wonderful fuel because most of us are dependent upon it in some way or other. This development was facilitated greatly by the co-operation of the appliance manufacturer and the gas man, and each one is indebted to the other. Such meetings as these are bringing the two still closer together.

Due to the familiar laws of pipe line leakage, it is very essential that all pressure be maintained at a minimum, of course, guarding against the possibility of an insufficient quantity at the point of consumption. This minimum allowable pressure is established by the character of the carrying system and the quantity to be transported. It is economy to keep the controlled pressure near to the minimum without going below. When loads are variable this is very difficult to accomplish and regulator manufacturers are being called upon to control pressures within very close limits.

Consideration of Large Size Regulators

To analyze the various problems of regulation we might first consider the various types of large size regulators which have balanced valves. They are divided into three types: Special High Pressure, Standard High Pressure and Low Pressure Supersensitive. We can then analyze each as follows:

Special H. P. Regulators are designed to take inlet pressures as high as 2,000 lbs. per square inch. This range of pressure under present systems of pipe line construction must be reduced to some safe line pressure. The greatest difficulty encountered is the cutting of valves and valve seats, due to the extremely high gas velocity and the foreign solid matter carried by the gas. To overcome this we use case hardened metal for both valves and valve seats. Difficulties of freezing are serious and will be discussed later.

Standard H. P. Regulators are designed to take inlet pressures up to 600 lbs. and reduce them down to some lower point. It is, of course, to be understood that a 600 lbs. pressure cannot satisfactorily be reduced to a very low pressure in one regulator. Such a reduction should be made in two or more steps. Sometimes dissatisfaction is experienced when regulator companies give an allowable inlet pressure of 600 lbs. and a low outlet pressure. This nomenclature on the regulator merely states that the body of the regulator will withstand a pressure of 600 lbs.

Most regulators are designed to control the pressure within satisfactory limits. These limits are sufficiently close for the majority of services. Some few requirements necessitate very accurate control.

I have been called upon to explain various difficulties encountered when regulating gas pressure and a short discussion of various points may be of interest.

* Read at the Southwestern Gas Meter Short Course, University of Oklahoma, April 6, 1927.

Freezing

The tendency of a regulator to freeze is due to the ratio of inlet to outlet pressures, the character of the gas and the design of the regulator. The law of expanding gas states that it absorbs heat very rapidly at the point of expansion. If heat is not available, the temperature of the expanded gas becomes very low. The low temperature is due to the ratio of inlet to outlet pressure, and if this ratio is large a low temperature is the result and some constituents of the gas solidify. It is apparent, then, that the character of the gas determines largely whether or not ice will be formed to interfere with the regulator operation. If the gas carries free water, the reduction in pressure must be low, as the water will solidify as soon as the temperature reaches a point below 32 degrees F. On the other hand, very dry gas, when at high pressures and reduced or expanded to low pressure, will cause a temperature far below zero and will solidify some of the natural constituents of the gas. Taking a typical example, we may have gas at 300 lbs. saturated with water. After the gas is expanded its water carrying capacity is greatly increased and water would be absorbed by the gas at the low pressure. Even in this case, however, such a low temperature is formed right at the valves that ice is formed. This one place will ordinarily interfere with proper operation of the regulator. To overcome some of this trouble we have found it good policy to have the valve guides removed as far as possible from the actual valve seat. Ice then formed at the valves does not interfere with the valve guides.

In some cases where gas carries large percentage of water or where ratio of inlet to outlet pressure is large, it is economy and almost a necessity to install some sort of heater on the lines very close to the inlet of the regulator. This ordinarily remedies the freezing trouble.

Internal Friction

It is very essential that all friction be eliminated from regulator parts, so that the valves will be free to move with the slightest variation in outlet pressure. If there is undue friction the regulator will open or close by jumps. This gives a very irregular pressure curve and each sudden change in pressure gives a very large change in volume of gas. This is very serious when the gas is measured immediately below the regulator. A good test for friction is to move the lever by hand to some new position and see whether or not it returns to its original position. If it returns near to its original position, there is very little friction. If, however, some of the parts are binding or sticking, the lever will stay in the new position.

Troubles With Dirt

A few years ago the biggest dirt troubles were experienced in new lines where it was common to find rabbits, stones, sticks and all kinds of things jammed in the regulator valves. Such troubles were only temporary and a few cleanings removed all trouble. Now since some gas being transported oxidizes the interior of the pipe lines, great quantities of dust accumulate in regulators as well as in other equipment. A regulator will not operate properly when the valves and body are jammed full of this dirt. This trouble has made a demand for a regulator which can be cleaned and serviced easily and quickly, without removing it from the line. Also this dust constantly passing through the valves cuts them badly. To meet this condition, seats should be renewable and valves made adjustable.

Positive Shut-Off

Hard seat regulators can be ground so that valves do not leak, yet the first shot of gas will leave a deposit on the seats sufficient to make the valves leak. From a manufacturer's point of view this is rather hard to explain, as some field men claim that a new regulator should shut off tight. On some service it is very necessary that the regulator shut off tight. This is particularly true in border reducing stations for small towns. To accomplish this we have been furnishing, for inlet pressure up to 75 lbs., regulators with raised seats and with valves equipped with paranite discs. The paranite discs stand up very well under dirty gas condition and they allow a very positive shut-off, even if a certain amount of dirt is present.

Effect of Varying Load

The inlet pressure remaining constant, it might be interesting to discuss the reason for the slight variations in outlet pressure due to change of load. The diaphragm of a regulator is one of its most important parts and the most practical for all service is one made of rubber or composition. In testing the characteristics of a diaphragm, we have found that a certain pressure will balance a given weight at one point only. To analyze this we can take a typical diaphragm and place a weight of 500 lbs. on top of it and put gas pressure underneath. By increasing the gas pressure it is found that the diaphragms will lift the weight gradually as the pressure underneath is increased. To get to practical conditions, we can say that if there is an allowable travel of one inch, that the diaphragm will start to lift the weight at 35 lbs. pressure. Then as the pressure is increased the diaphragm will rise, and at 40 lbs. the diaphragm will have traveled upward one inch. Picturing this condition in a regulator, we would have the 500-lb. weights applied to the diaphragm directly or by a system of levers and weights. With no pressure under the diaphragm the weights would hold the valves open then 35 lbs. under the diaphragm would just be sufficient to balance the weights. In order to close the valves under these conditions it would be necessary to increase the pressure to 40 lbs. This all proves that the effective area of the diaphragm changes considerably with different positions. Now considering this change in effective area in reference to the actual operation of a regulator, we can assume a constant

inlet pressure of 100 lbs. We would place the 500 lbs. of weight on the diaphragm and would naturally find that the outlet pressure would rise to 40 lbs., where valves would close. If the requirement for gas came on the outlet, pressure would fall to 37.5 lbs., assuming that a valve opening of one-half inch would pass sufficient quantity of gas. This shows the characteristic rise and fall of outlet pressure with corresponding rise and fall in demand.

Effect of Varying Inlet Pressure

To analyze the effect of inlet pressure we again call your attention to the pressure which will balance a certain weight at a certain position. If the load or demand remains constant, the valves must open farther when the inlet pressure falls and must close when the inlet pressure rises. For the valves to rise and fall it is necessary for the outlet pressure to change, to offset the change in effective area of the diaphragm.

A theoretically perfect gas regulator would always give a definite outlet pressure for a certain weight placed on the diaphragm. If we would replace the diaphragm by a frictionless piston and cylinder having a constant area, we would get this perfect regulation. Such a design, of course, is not practical.

I am hoping that the explanations above will give a definite idea why a regulator, when set at a certain outlet pressure, will change with both inlet pressure and quantity of gas required to pass through it. This change in outlet pressure, however, is not objectionable in the majority of cases.

Perfect Regulation

We can define perfect regulation more clearly now by stating that it is perfect only when the outlet pressure does not vary at all with changes in inlet pressure or changes in volume. A recording gauge on the outlet of a perfect regulator would show a smooth circle with no variations. Such regulation is not a necessity in very many installations but should be of general interest here. Such regulation has been achieved, where, on an EMCO regulator, the variation in outlet pressure is one-fourth of one pound at a pressure of 40 lbs. Some description of this installation will no doubt be of interest.

We have talked above about the change in effective area of the diaphragm and for our comparisons we may state that on a 7-inch diaphragm the area changes from 10 square inches to 11 square inches for the required valve travel. Reducing this to any standard regulator conditions, we could expect, at 40 lbs., a variation of 3.63 lbs. At 80 lbs. we would get a similar variation of 7.26 lbs. and the variation would increase as the inlet pressure increased

Gas Pressure Forms Balanced Condition

From this it can be seen that, at a pressure of 2 lbs. on outlet of regulator, the variation would be well within the limits of one-fourth pound. To get this action it is merely necessary to replace the weights on top of the diaphragm by gas pressure. This gas pressure forms more or less of a balanced condition, making the effect of the diaphragm the same as at the 2 lbs. pressure, the 2 lbs. pressure being sufficient to lift the weight of the valves and diaphragm parts. To further analyze this condition at a high pressure, of say 50 lbs., we would maintain very accurately a pressure of 59 lbs. on top of the diaphragm then the pressure under, which is the regulator's outlet pressure, would only vary from 38 to 38¼ for full value travel.

To maintain this constant pressure on top of the diaphragm we used for our test a commonly known oxygen regulator and allowed a small amount of gas to escape. The inlet of the small regulator was taken from the inlet of the large regulator. This balance pressure can be maintained very accurately in this way because of the constant small volume passing through it.

On the particular installation where this was tried out, a 12-inch EMCO. H. P. regulator was used where approximately 100 lbs. gas was to be reduced to 40 lbs. very accurately. The weights which ordinarily are placed on top of the diaphragm were discarded as outlined above. It was found that the 12-inch regulator installed in this manner was extremely sensitive and controlled the outlet pressure within one-fourth pound under any variable load condition. This system can be attached to the EMCO. High Pressure regulator because of its design having the outlet pressure under the diaphragm and having a minimum friction.

We know that high pressures can be controlled very accurately when desirable.

L. P. Supersensitive Regulators

Getting back again to the types of regulators, we have one more to consider, namely, the L. P. type supersensitive.

We have discussed the change in effective area of a diaphragm as causing the variation in outlet pressures of high pressure regulators. To overcome this effect in regulating low pressures we have made our diaphragms of leather and have formed them in such a way that there is a very minimum change in effective area. By doing this we are able to place a certain weight on top of the diaphragm and have the weight balanced by a certain pressure. This pressure then will balance the weight at practically any point in the diaphragm and valve travel.

Looking into the future we can see a development in regulators which will make everything automatic. This will be accomplished when a regulator both H. P. and L. P. can be installed which will automatically boost the outlet pressure to the proper point to offset the additional load and then reduce it again when the load decreases. With this arrangement the pressure on lines and systems could be maintained at an absolute minimum point. The pressure curve would, then, not be a uniform line but would follow directly the gas demand.

It is my hope that the problem of gas regulation will be given the same careful consideration that is given to gas measurement. The two are very closely related and it is good policy to make this relationship very intimate in the organization of the gas company personnel.

Laboratory Developments of Interest to the Natural Gas Industry*

Good service and efficient utilization will be hastened by the work of the laboratory

R. M. Conner

Director, Testing Laboratory, American Gas Association

LIKE most important movements launched by the gas industry, the national testing laboratory was established solely in the interests of better public service. There are very few, I believe, who will dispute this fact. Naturally there were a

R. M. Conner

number of contributing factors, such as the activities of the Bureau of Standards, Bureau of Mines and Public Health Service, as well as the commercial aspects of the situation. However, out of fairness to our leaders, we must admit that the guiding thought in this movement was a sincere desire to render only the safest, most efficient and convenient class of public service to the American people.

Any movement which affects the safety and welfare of approximately 52,000,000 people cannot be minimized in the order of its importance, either from a commercial or purely altruistic standpoint. If the laboratory can accomplish the purposes for which it was intended, the gradual elimination of cheap and inferior types of appliances, elevation of the standards of gas utilization, the reduction of competition from other fuel sources, and increase our product's usefulness, it should in the end prove not only helpful but a distinct and valuable contribution in insuring the future success of our business.

Laboratory Is a National Institution

The testing laboratory is a national institution in every respect. It is located in Cleveland, Ohio, because so many different kinds of base gases are available there. An appliance approved by it must satisfactorily burn both natural and manufactured gas. Still further, any manufacturer, regardless of whether he is a member of the American Gas Association or not, is not only invited but urged to submit his appliances for approval. Test fees are based on the actual cost of conducting tests and include only a portion of the laboratory's overhead. Such items as insurance, depreciation, interest on investment, cost of initial research and new expansions are all financed by supporting gas companies.

Being established largely in the interests of safety, our Laboratory is confining its first efforts to the examination of appliances which if improperly designed and constructed possess the greatest potential hazard to human life. This explains our policy of testing first appliances generally installed in occupied rooms where there is a possibility of the customer breathing the products of combustion.

While our approval tests are made on both manufactured and natural gas, it usually happens that the natural gas test is found to be the determining factor. Therefore, practically, if not theoretically, more consideration is given the combustion of natural gas than any other kind. It is common knowledge that natural gas on account of its high percentage of slow burning hydro-carbons, is a rather difficult fuel to burn. For this reason it is most important to your industry that the highest quality of appliances should be used in the utilization of your gas.

Contributions and Expenditures

In 1924 member gas companies of the American Gas Association contributed approximately $100,000 toward the laboratory's establishment. During the last two years this initial fund has been increased approximately $25,000 by further contributions from gas companies and your own association. These amounts with the laboratory's earnings have brought the grand total up to about $200,000. Total expen-

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*Read before Convention of Natural Gas Association of America, Cincinnati, O., May 9-11, 1927.

ditures to date are around $135,000, which, with the expenses incurred by manufacturers in bringing their appliances up to standard, represents an investment on the part of the industry of approximately a quarter of a million dollars.

During its year and a half of service the Testing Laboratory and the U. S. Bureau of Standards have conducted the initial research work necessary in the preparation of approval requirements for testing gas ranges, room heaters, water heaters, and central house-heating appliances. Numerous tests and inspections have been made which have resulted in the approval up to April 1st of 120 room heaters and 4,771 gas ranges. Approval tests were commenced on water heaters on April 1st and only recently approval tests on house-heating appliances were begun. As a result the gas industry now has a substantial list of the three major types of domestic appliances to select from.

Old Theories Exploded

In the short time that our testing establishment has been in operation we have noted great improvement in the design and construction of gas ranges and room heaters when operating on natural gas. Appliance manufacturers generally being located in manufactured gas territories and having their greatest potential markets there, have designed their equipment principally for the use of such gas. In fact, until recently there was a rather general impression that natural gas, on account of its inherent characteristics, could not be burned as efficiently or as safely as manufactured gas. Our laboratory has largely disproved this theory. We have found that where the proper size ports, throats, orifices and mixing tubes are used that combustion can be obtained resembling very closely the burning of manufactured gas. Hence the old idea that gas burners should be lowered, and special types of construction used in natural gas territories, is generally incorrect.

A development of vital interest to natural gas men is the research work recently undertaken by us on mixed gas. This problem was assigned as one of the principal items of an economic survey of the manufactured gas industry authorized by the executive board of the American Gas Association at its last annual convention. This problem was first presented to our technical section, who, realizing its magnitude, deemed it advisable to appoint a subcommittee to supervise conduct of this work. This committee was placed under the leadership of Mr. F. C. Weber, gas engineer of the Henry L. Doherty & Company. Mr. Weber's committee, after a very careful investigation, decided that the testing laboratory in Cleveland offered the best facilities for the successful conduct of this research.

Mixed Gas Problem Increasingly Important

In many localities it is more economical, and in others an absolute necessity, to mix gases. The diminishing supply of natural gas in some territories, and the advent of large quantities of by-product coke oven gas in certain manufactured gas sections, makes this subject one of the most important facing the gas industry today. It is a pleasure to report that a number of natural gas companies, largely at the request of your president, have decided to assist in the financing of this new investigation. At present four major phases of the problem are being considered. They are:

1. Effect of varying specific gravities of gases, other factors remaining constant.
2. Effect of varying heating values of gases, other factors remaining constant.
3. Result of varying both heating values and specific gravities during the same series of tests with other items remaining constant.
4. Effect of pressure variations.

In beginning our research on natural gas, it is our present intention to simulate in so far as possible the first steps that ordinarily occur when natural gas is mixed with a blue water gas, obtaining heating values around 950 B.t.u. These findings will be designed to show how far gas companies can go in their mixing processes without requiring the readjustment of most of their appliances. Our experiments should also show how far natural gas can be used as an enriching agent for manufactured gas without encountering difficulties from a utilization standpoint.

Many Types of Appliances to Be Tested

It is estimated that the completion of this problem will require about three years, and for this reason the most important portions of it will be undertaken first. All of the major types of domestic appliances as well as a number of industrial types of equipment will be used during these findings. Approved appliances in so far as possible will be used in our examinations, and the conditions of tests specified in each of our approved requirements will be followed in determining the combustion characteristics of each kind of mixed gas; therefore, the usefulness of each mixture from a utilization standpoint will be the deciding factor in determining the value of each kind of gas.

In connection with this research it has also been suggested that a study of the effect of compression on gases should be made. It is known that when some gases are delivered at different pressures their heating values often vary. Certain portions of them are often condensed and deposited in high pressure transmission lines, reducing their usefulness and adding further difficulties to the solution of our distribution problems. All of the experimental work on mixed gases should not only be interesting to natural gas men, but if properly solved should prove one of the most valuable scientific contributions recently made to your business.

Home Conditions Must Be Studied

Some recent computations indicate that the domestic load, which has always been regarded as the backbone of our business, is decreasing when con-

sidered in percentage of the total output. Various theories have been advanced explaining this condition, chief among which has been cited the changing habits of our customers. If this is true, then our greatest sales resistance does not come from competing fuels such as coal, oil, or electricity, but from the fact that we are failing to recognize the necessity of devices designed to add further to the conveniences and comforts of the modern home. We are all agreed that we must compete for our rightful share of the housewife's time and attention as well as our portion of the dollar she spends, therefore the decrease in domestic consumption must be met by shaping our sales policies in such a manner that they will be surrounded by distinction, new styles, fads, and habits of use of an interesting nature to the housewife. The testing laboratory and the Blue Star plan offer an ideal means for accomplishing this purpose. The former offers a new standard of gas service trade-marked by the Blue Star Seal of Approval. The latter the means of acquainting the public of the desirability and necessity of such plans.

Most gas companies have already given greater attention to the advancement of engineering rather than the commercial aspects of their business. This condition can perhaps best be attributed to the fact that our sales until recently have largely taken care of themselves. Production, distribution, rate problems and public relations have so taken up the gas company executive's time that there has been little left for the application of any concerted effort in building up an effective sales organization. This is unfortunate, for no product, regardless of how meritorious it might be, can be properly sold to all the public without the aid of the commercial men. What our industry now needs is not only additional appliance salesmen but more agencies through which we can adequately tell the story of gas. The testing laboratory hopes to assist in this work by offering a reliable index by which our customers can judge the quality of gas merchandise. Just as an unreliable product is a handicap to greater sales, so is a quality product rendering safe and efficient service day in and day out one of the industry's best agencies for promoting the greater use of gas.

Gas Industry Should Co-operate in Furthering Refrigerator

The gas fired refrigerator, one of our latest recruits, is now available in at least four different makes. It is quite true that not all of these machines are mechanically perfect, yet the gas industry should not throw the entire burden of their development upon the manufacturer. He should be encouraged by purchasing his products, installing them and assisting in working out the practical solution of his service problems. On numerous occasions it has been suggested that our laboratory test refrigerators. Before we can do this it would be necessary to prepare national testing standards. At the present time, I believe that this would be a great mistake, as there is no one, and certainly not a competent committee, that could be found to draw up reasonable approval requirements. For the laboratory to attempt to approve refrigerators in their present state of completion I believe would hinder rather than promote the success of a very useful art. Later on we will undoubtedly take up this work, but at the present time its development is plainly up to the entire gas industry.

The Baltimore gas ordinance was recently attacked by several gas range manufacturers. Their suit was based principally on what was termed an illegal transfer of administrative authority by Baltimore to the American Gas Association. While this case has not been definitely settled, it is believed that its final outcome will not only result in a strengthened gas ordinance but will leave the relationship of Baltimore and the laboratory virtually as it was. The city of Hartford, Conn., recently adopted a gas ordinance requiring in principle the approval of appliances sold or offered for sale in that city by the American Gas Association. Other cities throughout the country are contemplating similar regulatory measures. Where the need for such legislation exists our association, when requested, will assist the interested city in the preparation of an ordinance that is not only practicable but workable. The facilities of our laboratory are also a great aid to any city contemplating or enforcing such a plan. Few municipalities, regardless of their size, can afford the expenditures necessary to equip a laboratory and maintain adequate testing facilities.

Appliance Manufacturers Should Be Encouraged

During the last annual convention of the American Gas Association its members realizing the necessity of supporting the laboratory to the fullest extent, passed a resolution which in a sense binds its member gas companies to confine their appliance sales exclusively to laboratory approved appliances as rapidly as satisfactory lists of them are made available. This was a very timely action and one that might very well be emulated by the Natural Gas Association. As I have stated, the gas industry has already invested approximately one-quarter of a million dollars in its national appliance testing program. If this investment is to amount to anything, then every gas company should support a plan that is designed fundamentally to protect the future success of its business. Still further, manufacturers who are spending large sums of money in bringing their products up to standard are entitled to all the encouragement and support that can possibly be given them. In fact, unless this support is forthcoming the whole appliance testing program will fail and the industry will be taking a backward step in the conduct of one of the most important parts of its business.

Leading men of the gas industry now agree that our business stands on the threshold of a wonderful era of expansion. After all, there seem to be no fundamental reasons why it should not. If our customers desire energy in the form of heat, then where gas is available it is the logical fuel.

I do not anticipate any serious and general competition in the future from electricity, solid or liquid

fuels. The practice of transforming heat into electrical energy and then back to heat again is attended with so many losses through these various transition stages that it makes this practice not only uneconomical but scientifically unsound. Where electricity is developed from coal only an average of about 12 per cent of the original heat in a pound of fuel is finally delivered to the customer; whereas, in the case of gas probably 80 per cent of the original amount of heat is supplied.

Not Likely Oil Will Become Serious Competitor

It does not seem likely from our observations that oil will ever become a really serious competitor of gas, at least not for any great length of time. The large investments necessary when installing oil burners for heating homes and the attendant difficulties of securing fuel by tank trucks, and the difficulties of operation do not indicate that it will ever become a very serious competitor of gas. As a matter of fact, it now seems that the peak of this competition has been reached, and that outside of a few large industrial installations where the characteristics of oil make its use most practical, it is believed that competition from this source will generally decrease.

To the natural gas companies who are faced with the necessity of having to change their gas supply, scientists inform us we have a sufficient supply of coal available to last for 1,000 years. Although coal is a practical gas making fuel, its use in solid form is accompanied by so many disagreeable features that in the not far distant future there will certainly be restrictive legislation passed against its general use. Doctors and municipal authorities in many of our large eastern cities are now seriously considering the smoke evil. Quite a number of cities have smoke ordinances and these are sure to become more restrictive as the public learns of the deleterious effects of smoke and its attendant gases on the human system. Considerable evidence has already been collected in Baltimore and elsewhere to show that the curve of respiratory diseases almost exactly parallels the smoke curve. Further than this, it is becoming generally recognized that sunshine is a necessary adjunct to good health, all of which seems to point to the fact that gas will eventually become the generally accepted domestic fuel.

With thermostatically controlled gas fired appliances to heat our homes in winter, and refrigerating systems to cool them in summer, we may look forward to a time when gas will play the most important part in adding to the future comforts and conveniences of our customers' homes. The testing laboratory has a definite place in this picture. Later on we will undoubtedly take an active part in the development of such appliances. In the meantime I trust that you will look upon our institution as your own, for actually it is one that is constantly involved in the solution of your appliance problems. With this thought in mind, I am asking and hoping that our institution may receive not only from your association, but from each and every member of it, the most hearty and unqualified support.

GAS SALES DIVISION OF NEW ENGLAND GAS ASSOCIATION HOLD ANNUAL MEETING

H. P. Allen.

THE annual meeting of the Gas Sales Division of the New England Gas Association was held at the Boston City Club on Friday, May 13. Over two hundred members were present when Governor M. B. Webber called the meeting to order. In opening the meeting Governor Webber stated that several of the members of the division had recently received promotions. He referred to William Gould being elected president of the New England Gas Association; Mr. H. J. Pettengill, Jr., has recently been elected assistant vice-president of Stone & Webster & Blodgett, and Mr. Joseph Quinn, a former governor of the Gas Sales Division, is now president of the Citizens Gas Light Company, Quincy, Mass.

Attention was called to the industrial gas course which is to be held at the Massachusetts Institute of Technology from June 13 to 25, inclusive. This course has been conducted for several years at the institute and it is felt that those who attend the course will receive information and instruction which will be of considerable value to them in the gas business.

President Gould of the New England Gas Association referred to the Sales Conference which will be held in New London on June 3 and 4. He urged everyone who could possibly do so to make every effort to attend the conference.

Report of Slogan Committee

Governor Webber next called for the report of the slogan committee, which was appointed to receive and judge slogans applicable to the gas industry. Mr. Jesse L. Johnson, chairman of the committee, submitted the following report:

Your slogan committee felt that the sentiment of the New England gas fraternity on this slogan subject could best be learned by holding a contest, and giving everyone an opportunity to suggest a new slogan.

As an incentive to obtain careful consideration and worth-while suggestions, three cash prizes were offered—$50 as the first prize, $30 as the second prize and $20 as the third prize.

Notices of the contest were mailed with a letter to the gas companies of New England and to the manufacturers who hold membership in the New England Gas Association.

A reading notice was inserted in the April issue of "New England Gas News," stating that the committee was desirous of learning the sentiment of the fraternity on the subject, Shall the gas industry have a slogan? Shall it be our present one? Can you suggest a better one?

Shall the gas industry have a slogan? As an answer to this, 102 individuals indicated an affirmative by contributing.

Shall it be the present one? No expression favorable to the present slogan was received.

Can you suggest a better one? In the contest 605 slogans were submitted.

Communities Submitting Slogans

From the State of Maine, slogans were received from Lewiston, Rockland and Waterville. From New Hampshire: Manchester and Rochester. From Vermont: Montpelier and St. Johnsbury. From Massachusetts: Boston, Brockton, Cambridge, Charlestown, Dedham-Hyde Park, Easthampton, Fall River, Haverhill, Holyoke, Lawrence, Lowell, Marlboro-Hudson, Massachusetts Lighting Company, New Bedford, Newburyport, Northampton, Old Colony, Plymouth, Quincy, Revere, Taunton, Watertown and Worcester. From Rhode Island: Providence. From Connecticut: Meriden, New London, New Haven, Norwich and Thompsonville. From Manufacturer members: Eastern Service Company, Mansfield Foundry Company and Reading Iron Company.

Our membership will appreciate that to select the best slogans from a total of 605 is no easy task. Again, your committee felt that with suggestions submitted by persons of both sexes, with an experience and training from that of vice-president to stenographer, and from that of superintendent to gas fitter, some method should be used which would neither influence nor handicap the committee because of the identity of the individual. The merit of the slogan should be the only consideration.

All slogans were written on 3x5 cards, care being taken to reproduce capital letters, underscoring, arrangement of phrases, etc., as submitted. The name of the contributor was written on the reverse side of the card for identification, after the winning slogans had been selected.

After a very deliberate consideration, the following awards were made:

First prize, $50 in cash: "The RIGHT Fuel is GAS." Awarded to J. R. Gibbins, Worcester Gas Light Company.

Second prize, $30 in cash: "Controlled Heat for Home and Factory." Awarded to R. L. Fletcher, Providence Gas Co.

Third prize, $20 in cash: "For Those Who Want The Best—G A S." Awarded to Madeline R. Durfee, Providence Gas Company.

At the conclusion of the reading of the report, Governor Webber complimented the winners and thanked the members of the committee for their work in the selection of the prize slogans.

Report of Activities

As called for in the by-laws of the Gas Sales Division, it is necessary at the annual meeting of the governor and board of managers to submit a report covering the activities during the past year. Therefore the following report was presented by Governor M. B. Webber:

It being the duty of the governor and board of managers to present at the annual meeting a report covering the activities during the year, the condition of finances and recommendations for the coming year, we refer you to the secretary's report just read and submit the following:

This is the first full year of operation of our division since the amalgamation forming the New England Gas Association. At the time of the amalgamation our membership was less than 200. Our present membership of 255 represents only one of many advantages which have resulted from the new organization and our closer relationship with the other divisions.

Our present membership includes 60 gas companies and 48 manufacturers. The membership committee, consisting of Messrs. Stafford, Savory and Rossman, have analyzed our list of members, made some calls and, with the co-operation of about a dozen manufacturers' representatives, plan to call on every gas company not now a member before the next meeting in the fall.

Publicity Committee

Our publicity committee, consisting of Messrs. Woodhead, Haas and E. A. Taylor, have endeavored to spread favorable publicity and to correct unfavorable publicity relative to the gas industry as a whole. Part of this work, therefore, was an endeavor to secure space in the Boston papers relative to the meetings held by the Sales Division; an effort has been made also to keep alive the interest of the gas journals, giving as much space as possible to our meetings. The committee feels that it has just started and quite a gradual increasing of this work will eventually be of material assistance. The co-operation of the members is requested in sending the committee any comments unfavorable to the gas industry which should be corrected and also any items which have news value.

The joint refrigeration committee—Messrs. Ritchie, Phelon, Woods, Howe and Hodge—have tested the prominent makes, checked data with various gas companies and report equipment apparently through experimental and engineering stages, so that with careful installation and following of manufacturers' instruction gas refrigeration becomes a merchandising or sales problem. Any further committee work will be along merchandising lines.

At our January meeting, Mr. A. A. Naulin, of Milwaukee, brought us many helpful ideas and suggestions, emphasizing especially the increased sales that a number of the Mid-West companies are enjoying through the use of the so-called "Group Appliance Manual," which gives a customer or prospect in convenient form the result of a survey of his home from a "Home Comfort" standpoint. The committee appointed consists of Messrs. Carter, Aylward and Allen, who have put in a substantial amount of time and energy working out the details of a manual adapted to New England conditions, received requests from 24 companies for samples, and to date have received orders for and sent out 675 manuals. They have approximately 200 copies still available from the first printing.

(Continued on page 563)

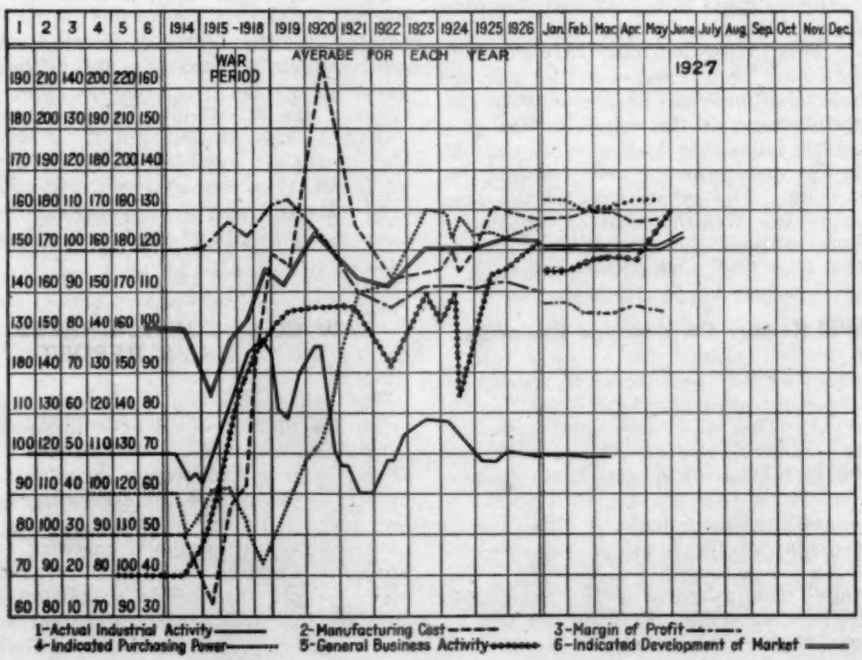
Further Improvement Looked For

Mississippi disaster will have no serious effects upon nation's markets

Walter Alwyn-Schmidt

THE effects upon national business of great national disasters are difficult to foresee. Peculiar as it sounds, however, there is reason to believe that these effects as a whole are beneficial rather than detrimental. The earthquake in San Francisco, to select one example, brought prosperity to San Francisco and California at a time when other parts of the country were suffering from a long-drawn-out depression. The destruction last year of part of Florida may yet prove a blessing in disguise. So, no doubt, a silver lining will yet show at the edge of the clouds which darken at present the banks of the Mississippi.

Great floods differ from other forms of widespread destruction. Fire devastates, but its radius of destruction is small. Storms destroy houses and crops, but leave unaffected the land. Earthquakes destroy principally buildings, but a great flood overrunning a wide part of the country not only destroys present prosperity; it also may easily kill the the prospects of future earnings. The waters that have escaped the dikes and levees of the Mississippi will not end their disastrous course when once they begin to recede. Much of the water that spilled over the dikes will remain for many months. The very soil may have suffered, and much of the country now under water may have to be reclaimed as completely as if it had never been under cultivation.



Property Destruction

In addition there is that most insidious form of property destruction which attacks all those stored-up small possessions that make life easy. It forms in rural communities the real wealth of the population. Much of these possessions might possibly be classed as junk if found anywhere else than in a farm yard. In the hand of the farmer they turn to many valuable uses. A spare wheel, bolts, nuts, parts of farm implements, leather straps, stored away furniture, all can be utilized as the owner requires. When lost everything has to be bought afresh, necessitating continued small expenditures of cash which of course is least available following such a disaster. This kind of loss goes into many millions of dollars and proves in the long run the most aggravating, and incidentally the most hard felt, as no relief agency or other body can adequately take care of property which has no value except for the owner.

It is this form of destruction, however, which ultimately is the real cause for the activity in retail trading that follows invariably a disaster like the

present. Germany, which during the war used up almost all available scrap, has given an excellent example for what we shall witness in a lesser degree in the Mississippi region.

Effect on Wholesale Market

Estimating the possible effects of the Mississippi flood upon the nation's business, it will be necessary to group these effects under various heads. There is first the immediate effect. This will be felt most in wholesale and jobbing circles. It will consist in a stoppage of all orders for at least a month if not a longer period, until the actual damage to retail stocks will be ascertained. No new merchandise can be carried into the affected area at the present moment, as it will be necessary first to make inhabitable again the stores damaged by water.

As the water recedes history will be repeated. The optimism of the human race will assert itself, and the owners will return to their devastated homes, and no doubt will rebuild what has been destroyed. Much of the loss, no doubt, will be carried by the nation as a whole. It will be covered by flood insurance, by national contributions and by similar agencies.

Economically a vacuum has been created in the affected areas. In this must flow very soon building materials, seeds, clothing and food in very considerable quantities. This inflow will take care not only of the most immediate requirements of the affected region, but must also provide for reserve stocks. This is the second stage of the rehabilitation process. It is its most important and most costly feature, and will in this case require a very considerable amount of financing. The inhabitants of the area are generally not very wealthy, and as a security have little to offer outside the value of the ground which cannot be very high under the conditions.

Restocking Will Require Considerable Financing

Third in line follows the stocking up of the region of the normal resumption of business after the rehabilitation period. This also will require considerable financing. Steps to this end have been taken already, and the formation of special banks is contemplated.

No real estimate has been made at the time of writing of the extent of the financial loss, and no such estimate can be expected for a while. Ten million dollars have been asked so far for immediate relief by the Red Cross alone. This money will be but a drop in the bucket. Economically it will be a clear loss, as it will merely tide the region over until a more definite plan of rehabilitation can be adopted.

For those who have a definite interest in the subject it may be stated that at least two years will be required to put the affected market back upon its previous basis. But there is the assurance that once the rehabilitation process is completed the region will emerge from it better organized and in a better economic condition than before. There will be new buildings, modern roads and modern bridges. The shops will be stocked with the newest kind of merchandise. The river will be harnessed with a better chance for protection than it was, the likelihood of a new disaster of the same kind will be less.

Greater Activity Necessary in Rest of Country

To provide an equation for the economic vacuum of the Mississippi River Valley, greater activity will be necessary in the rest of the country. The building material, the clothing, the food, household goods, and money, will have to be provided by the rest of America, bringing to its factories work and a surplus activity which may be most welcome during the coming summer months. The writer realizes that this means taking rather a cheerful view of one's neighbours' troubles, but market forecasting does not deal with sentiments, but such statistical facts that affect the demand and supply of commodities. Wholesale destruction of property in one spot calls for wholesale production at another spot, in order to make up for the loss. Whatever loss there is, ultimately will be carried by the nation as a whole; exactly like whatever economic benefits obtained by one member or group of the nation do not affect only the immediate beneficient. The industrial activity called forth by the Mississippi disaster will soon call forth component reaction in the Mississippi valley itself. Rehabilitation means work for the population of the affected area, because whatever may be done outside preparatory, the ultimate work of rehabilitating the area must be done by the inhabitants of the Mississippi Valley themselves.

Bad as the present plight is of the Mississippi Valley and its inhabitants, the disaster means only an incident in the economic life of the nation. It may interrupt the upward movement of the market curve for a month or so, but it will not stop it.

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RAW COAL CONTAMINATES AIR, SAYS U. S. REPORT

The use of raw coal is the chief cause of air pollution and its attendant evils in American cities, according to a report of the Bureau of Mines of the Department of Commerce. Soot from coal burned in industrial plants and domestic stoves and furnaces is the main cause of harm, according to the report, which says that soot is a mixture of carbon, tarry products, sulphur acids and ash. These products make people susceptible to pneumonia and throat trouble, soil and damage clothing and other property and injure vegetation. An estimate made by the Bureau of Mines puts the material damage due to smoke and soot in American industrial cities at $7.66 per capita per year.

The eventual solution of the smoke problem will be found in the substitution of smokeless fuels, chiefly gas and coke, for coal, according to a statement of the fuel division of the American Society of Mechanical Engineers, which says that the accentuation of the smoke evil in cities will sooner or later necessitate taking this step.

As The Journal Views It

POOLING OUR BRAINS

The electric industry early sensed the advantage of freely interchanging ideas as to the best procedure to be followed when various engineering problems arose. In short, it practised team work of a very high sort. Indeed, this co-operation has been one of the most important factors in the widespread and diversified use of electrical energy.

Due perhaps to the comparatively small number of out-and-out technical men in its ranks up to within fifteen or so years ago, our own industry was somewhat late in inaugurating a similar program. It is true that from time to time certain gas engineers would solve some quite worth-while and important problems. But, generally speaking, they did not wax particularly energetic by way of passing along such information to their brothers-in-the-craft.

This condition was by no means due to a spirit of selfishness, but rather to a lack of the proper vehicle for conveying their message. Hence many of the larger gas companies pursued their technical investigations independently and perforce accumulated a lot of engineering chaff. More they must have followed many a course of investigation that others had found to be faulty. Obviously, this made for a loss of valuable time and the unprofitable expenditure of money.

Of late, however, due almost entirely to the good offices of the American Gas Association in promoting the various technical conferences, the gas industry is now grouping its ideas and combining its mental energies to the end that all gas companies will be in a position to apply the correct solution to any particular problem.

And the problems of the industry, while not particularly irritating, demand concerted thought in order to consummate their clearing up. Acting separately, the gas companies will make but a painful headway in this wise, but by pooling their brains they will be in a position to progress in an altogether desirable fashion. The recent Distribution Conference, held in Baltimore, and the Production Conference, completed this week in Detroit, augur well for future good gas engineering practice.

THE CUSTOMER'S PURCHASING CAPACITY

It would seem that the merchandising end of our industry has been unduly considerate, if indeed not timid, relative to estimating the ability of its average customer to handle a purchase that begins to run into "money." In other words, we oftentimes harp too strenuously on the bare cost of an appliance or an installation rather than concentrating our thoughts and efforts on its ultimate utility in service. Consequently, we argue at great length as to whether the customer will balk at the first cost. Or if we hurdle this obstacle we again place ourselves on the defensive by way of speculating anent his ability or desire to pay for the gas consumed.

The capacity of the average American to purchase commodities, whether necessities or luxuries, seems to be rather flexible. Twenty years ago he would have been considered a somewhat visionary fellow who would have hazarded a guess that today upwards of twenty million automobiles would be owned by the American public. How the aforesaid public is able to purchase and keep them in operation is a problem for the economists to answer, and in the answering to marvel at. But the fact remains that it is being done. The condition is not unlike the story of the man behind the bars who was told by his attorney that there was no law in existence that could place him in durance vile. Nevertheless he was in just that predicament.

If gas men should propound amongst themselves the question as to how many house owners or tenants could afford to pay the sum of fifty dollars per month for six months in order to have house heating they would doubtless break all records for conservativeness. On the other hand, if any of these men were asked to estimate how many persons do in some fashion or other manage to pay out twenty-five dollars a month for twelve months for running an automobile, they would clarion a figure of truly astronomical proportions.

We need to change our viewpoint. We should partially desist in trying to figure out how a customer should spend his income. Our service is all that can be desired and its price is anything but excessive.

INDUSTRIAL GAS LESSONS

IF IT'S DONE WITH HEAT — YOU CAN DO IT BETTER WITH GAS

Lesson No. 172

Blue Water Gas

Operating the Set

The details of the manner of operating a blue gas set are many and involved, and it is not our intention to give here an exact description of this procedure. For it must be remembered that the directions for operating a blue gas set vary in accordance with the ideas of the builder of the apparatus and the operator as well. It is also true that operating directions vary considerably from time to time, that is, it is not possible to lay down any accurate rules for operating the blue gas set which will always hold good. In fact, the method changes very rapidly.

There are, however, certain definite principles of running the blue gas generator which apply to all sorts of seats and which do not change very much. It will be our aim here briefly to mention what these are, for even these require considerable space if gone into in any material detail.

Inspecting the Set

One of the principal functions of the blue gas operator is to inspect his set, and this refers not only to inspection of new apparatus but also to the case when an old apparatus has been repaired. It is essential that the interior of the set is clean and free from all rubbish. The inspection should also be applied to the valves, the joints and piping to see that they are tight and in proper working order.

After inspection the apparatus should be dried out, which is accomplished by the aid of a coal or coke fire on the grate without forced draft. The details on the method used for drying out the generator can be found in the set of directions furnished by any maker of this apparatus.

We can consider the fire either cleaned out of the generator or the generator new. The first step is to charge the generator with fuel up to the usual height, the depth of the bed being seven to nine feet. Then the stack valve is opened, the air valve as well, and air is blown through from below, passing through the fuel bed. The air burns the coke in a narrow bed near the grate, and this zone naturally becomes very hot. The carbon dioxide gas that is generated by the burning of this coke is reduced to carbon monoxide by coming into contact with the cold carbon immediately above the hot zone. Then above this zone the temperature becomes too low for chemical reaction and the gases simply heat up the coke or coal. As the temperature rises within the apparatus more and more carbon dioxide is reduced to carbon monoxide. The temperature of the gases entering the stack also rises. At the proper point the air blast is turned off, the stack valve is closed and steam is blown in below the grate.

The steam enters the hot zone and comes into contact with the extremely hot carbon, with which it reacts and forms water gas, that is, a mixture of hydrogen and carbon monoxide. This reaction takes place with a considerable absorption of heat and the temperature soon falls. As the steam passes up further through the bed of coal it is cooled off and just serves to preheat the coke in the upper portions of the generator.

Coke Cools Rapidly

It does not take long for the coke to become incapable of reacting with the steam, due to this rapid decrease in the temperature. It is then soon found uneconomical to continue the introduction of the steam, the steam valve is accordingly closed and the stack valve and air valve are opened and the air blow is repeated. This is in fine the cycle of the blue gas generator, blows alternately with runs. The blow with air heats up the apparatus to the gas-making point, and the run makes gas. It will be noticed that in this case the run is the so-called "up run"; that is, the steam is blown into the apparatus at the bottom and passes up through the generator in its gas-making path.

The manipulation of the valves controlling the air and steam admission, etc., can be effected by hand or else by automatic means. The automatic devices open and shut the valves in accordance with a predetermined schedule and this can be varied at will. The automatic devices are operated by hydraulic means.

GAS SALES DIVISION HOLD ANNUAL MEETING

(Continued from page 558)

Renting Space Heaters

At our February meeting we had called to our attention the success they have had in England renting space heaters. The committee appointed to investigate the proposition, consisting of Messrs. Quinn, Gordon and Fisher, are at work and have been assigned a place on the program at the New London Sales Conference, by which time they will have a report ready that I am sure none of us can afford to miss.

The water heating committee, consisting of Messrs. McKearin, Eavenson, Anderson, Piser and Willard, which resulted from the extremely able paper presented at our March meeting by Mr. Johnson, are also actively at work. At the meeting of the committee in Haverhill last week, to which I was invited, I realized more than ever the vital importance and great potential load, the sales problems and opportunities existing in this phase of our business. They have made an analysis and laid out a program of recommendations, sales helps and research, which I should think would keep an ordinary committee busy three years. I hope every member, both gas company and manufacturer, will give them help, data and unselfish co-operation when and as asked for, in order that they may give us as many practical recommendations and as soon as possible. They are in hopes to be able to make a substantial report at the New London Sales Conference.

Membership

While or membership is fairly representative, as far as large and small companies are concerned, and from the standpoint of the gas companies and manufacturers, there are many gas companies, particularly in Connecticut, Maine, New Hampshire and Vermont, who are not now represented in our membership, and who could contribute materially to the value of our meetings, and who would in return undoubtedly receive benefits from the association.

This situation has been very successfully combated by the operating division, who have created considerable interest and attendance by their plan of holding meetings at different places scattered throughout New England, but it does not seem to be practical to hold our regular meetings anywhere except in Boston. Arrangements have been made for the Summer Sales Conference at New London, which we hope will help in a measure at least.

The question of meeting place in Boston has also been given considerable thought. Every hotel, new and old, and all the known available clubs have been approached, either personally or by correspondence, and considered. To date no place has been found which seems better fitted to our requirements than the Boston City Club, considering location and our available money, number of men, checking lounge and meeting room facilities. Probably few of us realize how much we owe to our secretary-treasurer, for his untiring efforts in an endeavor to secure for us here during the past season service and arrangements.

Work of Publicity Committee

Many of you will remember that over three years ago a publicity committee started work in an endeavor to secure for our industry in New England better publicity, and, if possible, some form of co-operative advertising. The result of this is represented by the present "Everyday" magazine, which, while sponsored by the New England Gas Association, is fundamentally a sales proposition directed solely to the domestic phase of the business, and, therefore, should receive the support and co-operation of our division more than that of any other. This publication is designed to create one of the things most essential to the success of any industry, and I think was well expressed recently at the Boston Chamber of Commerce by Bruce Barton. With your permission I am going to quote a few lines from what he said:

"Ten years ago if you had a factory—that is, a structure of brick and mortar and machinery—and went to a bank, you were very welcome. You could usually negotiate a loan. If you had an inventory, you were sure of a loan, provided of course you were running your business without too much expense, which usually meant without too much advertising. Today, if you have a factory, the banker looks at you critically; he suggests there may be something the matter with you, your machinery may be obsolete, your plant may be badly located, possibly you could contract with someone to make the goods cheaper than you can make them yourself. If you have an inventory, the banker is sure there is something the matter with you, but if you have a "NAME or SERVICE," which the public has been taught to recognize and trust, if you have what we call "Consumer Consciousness," the banker or the investor is eager to have his money in that sort of a business. He knows that the one imperishable thing in the world is the human brain. An earthquake can destroy your plant, a fire may wipe out your inventory, but if your business is built into the minds of the people and their children, it cannot be destroyed."

I wish at this time to thank personally the members of the board of managers for their support and assistance which has been so cheerfully given throughout the year, and to express for myself and to the board our appreciation of the hearty co-operation always received from our Manufacturers' Representative members.

Sales Division Report

The next report to be presented was that of Mr. J. H. Sumner, secretary-treasurer of the Sales Division. His report showed that the division was in good standing financially and that the attendance at

(Concluded on page 566)

GAS MERCHANDISING

Domestic – Industrial

Ideas for the Man Who Sells

William H. Matlack

JUNE

June is the month of "The June Bride"—why we do not know. Nevertheless it is, and the merchandising gas man should cash in on it. Plan a Bride's Window, show her how important it is to have modern labor-saving appliances in her home or "cave," as the case may be. Even the modern cliff (apartment) dwellers have to have hot water and something on which to cook their meals. Sell them an apartment range, a water heater, a folding ironer, a laundry stove, a washer, or sell this idea to the apartment house owner. If Mrs. Newly-wed is to occupy her own home sell her the idea of freedom from coal and ash heaving, sell her automatic gas home heating, sell her the convenience of the home laundry and the freedom from kitchen drudgery, the self-regulated gas range. Start early on this job of selling. It is worth a lot of effort to get in where a new home is created.

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HOW ABOUT PROSPECTS FOR FALL HEATING JOBS?

To many it may seem a little early to talk about going after prospects for fall heating, yet if we do not plan our work and work our plan and start after business early we sometimes wake up some fine morning to find that procrastination has cut down our sales volume. Business is good for those who go after it continuously and consistently, who plan their work and work their plan.

The gas heating business should be more a seasonable business than water heating. By that we mean that while folks may not have use of the gas fuel for space heating every month in the year, there is, on the other hand, no month in the year when the gas man should not give some thought to house-heating. The more thought we give to this phase of the business the sooner we will convince folks that gas is the fuel of the future. There is no time like the present time to start anything.

In every city in the country, every day in the year, plans are being drawn for new homes or for remodeling old ones and for building store and office buildings, and the gas man may regard each and every one of these sets of plans as prospective outlets for gas fuel lines.

This month is just as good a month as any in the year to start to build up your domestic and commercial fuel load. You need not go after this business by buying full pages in your local newspapers, but you can start by using direct-by-mail advertising. The idea is to implant the seed of desire in the mind of the prospective customer, the idea that gas is the ideal fuel for space heating, that it is clean, quick, convenient and flexible, and that it is, no matter what its price may be, a fuel that he should consider.

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NEWSPAPERS CONDUCT COOKING AND BAKING SCHOOL

Looks Like Gas Men Overlook Something!

By J. B. Dillon

THE Denver Post in March held a three day cooking school at the new Cosmopolitan Hotel in Denver, Colorado, and thousands of women attended. In addition to Mrs. Georgia Porter a leading domestic science authority in charge, there

were about twenty-five young ladies wearing a regulation uniform, the apron inscribed with the particular food product they represented. Prizes were given to the ladies making the best cakes, etc., and attached to the entrance free-ticket was a numbered coupon, the coupon being held by the lady entering, the tickets dropped in a box, and at each session of the school a drawing was held. The holder of the coupon agreeing with the number of the ticket drawn was given a market basket filled with groceries, the retail price of the commodities within the basket amounted to something like $3.50 to $5.00.

All of this was known in advance, and, of course, brought the crowd, and then as a capital prize a high-class range was given.

Gas Range Qualities Not Stressed

Now, Mrs. Porter used one of these gas ranges while demonstrating the proper manner to weigh, mix and bake certain pastries. While she mixed the dough she lauded this and that baking powder sugar, spices, etc., but did she deliver a lecture on the many advantages of gas over other cooking mediums, such as no coal, wood, ashes, and then explain in figures that a ton of coal that costs so much will be required to maintain a coal stove—with all its drawbacks—for a month, while gas with its many advantages, such as uniform heat, one match to start, the fire out in a moment, very little rise in temperature over the normal atmosphere of the room, etc., will cost only three-fourths as much as the ton of coal or even less?

Did she explain that electricity for cooking is more expensive than gas?

She did not!

Why?

Explanation

The writer can only offer the explanation that because the newspaper advertises both gas and electrical appliances it would ill become it to leave out of consideration the electrical appliances, or come out flat-footed as espousing one paprticular article over all others, and right here dealers in gas ranges allowed the newspapers to "scoop" them. Yes, the opportunity was lost because if this school had been held by gas men surely they would have gone into detail of the superiority of gas over every cooking medium known to culinarydom, and rightfully and truly so, because gas is without an equal in the kitchen.

Quite true, some who do not own a gas range may have asked questions and were given the facts enumerated herein, but this is conjectural. The school should have been operated by gas men with a gas woman who preaches it, practices it, and persuades others to do likewise.

Another Newspaper, Another Cooking School

Hardly had the cooking school as conducted by the Post finished its session when the Rocky Mountain News of Denver, competitor of the Post, started a larger and bigger school of its own, the whole affair being in charge of Mrs. Ida M. Chitwood, domestic science expert, and the big municipal auditorium was engaged for the affair. More and costly prizes were given by the News, but other than that, the same remarks as apply to gas men being "scooped" are applicable.

One Merchant Takes Advantage

The head of one of Denver's big department stores sent over a bevy of young ladies and with them some gorgeous gowns, and between bakings the models pranced and pirouetted before the female audience.

The ladies were advised in advance that they would have the pleasure of seeing all of this, and it is safe to say that all thoughts of sugar, spice and gas ranges were forgotten, yet this was a cooking school.

With two schools already held it is likely that a third coming now would not be so well attended, yet the canning season is close at hand and anybody that knows anything about canning fruits in the home knows that the gas range is almost indispensable, hence it is that local gas appliance dealers lost many opportunities for making all of this plain to the greatest number of women.

But it is not too late for dealers in other cities to hold a cooking school with a "gas woman" like we described in charge, nor is it too late for Denver dealers to beat the newspapers to these schools next year.

Donations

While it is not absolutely certain, it is understood that some of the wholesale grocers donate certain foodstuffs for such occasions, believing that it is inexpensive advertising, and that the merit of their article will bring about calls at the retailer. Therefore, we, as gas appliance dealers, can well afford to give away well stocked market baskets as was done by some newspapers, and, of course, our expert, while she is "mixing," can explain that I use So-and-So because I find it reliable and pleasing.

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GAS COMPANIES TOP LIST IN QUESTION GAME

"Ask Me Another" is an old game to the home service departments of gas companies. Last year more than 7,500,000 women received cooking advice from these departments. One company alone, the Peoples Gas Light and Coke Company of Chicago, answered over 115,000 questions on matters of home-making during 1926. More than 76,000 women called on the gas company in person to ask their questions, 15,000 wrote letters and 24,000 made telephone inquiries.

GAS SALES DIVISION HOLD ANNUAL MEETING

(Continued from page 563)

the meetings during the past year was very satisfactory.

The speaker of the evening was Mr. John Daniels, Legislative Agent of the Associated Industries of Massachusetts. He spoke about the conditions in America and his address was presented in a somewhat different manner than the speakers who have appeared at the previous meetings. At the conclusion of his address he was greeted with a tremendous burst of applause.

The nominating committee consisted of the past governors of the association, and they presented the slate in a rather unique and novel manner. To the tune of "My Bonnie Lies Over the Ocean" they sang a song entitled "For Governor," and another, "For M. Bernard Webber was presented for governor and the nominees for the board of managers were Messrs. Sampson, Wright and Sumner.

At the conclusion of the presentation of the nominations, motion was made and seconded that the secretary be instructed to cast one ballot for the above named gentlemen. The secretary compiled one ballot and the slate as presented by the nominating committee was elected.

Governor Webber stated that he would strive to continue the good work as carried on by the association and he predicted success for the Sales Division of the New England Gas Association during the coming year.

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LIQUID FUELS FROM GAS

Synthetic Gasoline From Water Gas

By C. P. Harris, Ph. D.

IT is scarcely surprising that most of the work on the conversion of gases, such as producer and water gas, into liquid motor fuels should have been done abroad. Petroleum gasoline comprises 98 or 99 per cent of the motor fuel consumed in the United States, and there are more than twenty million registered motor vehicles in the country, or about 80 per cent of the world's automobiles. It is evident, with only 1 or 2 per cent of the total propelled by fuels other than gasoline, there has been no domestic shortage of this commodity. As a matter of fact, in 1925 there were 9,165 million gallons of gasoline consumed in this country, while there were 10,886 million gallons produced the same year [1].

Obviously, substitutes for gasoline are of technical interest only as future necessities, or as competitive products abroad or eventually as competitive materials at home. The situation in Europe, however, is quite different. A cheap motor fuel would doubtless increase the number of cars in operation, which one year ago were only approximately 2,000,000 for Great Britain, France and Germany combined [2].

The question of adequate gasoline supply has thus been an urgent European question for some time. With Russia isolated, the sole non-American source of petroleum and its products has been Persia, whose production (controlled by European and American companies) has not been sufficient to supply the European market. Importation of American petroleum products has been necessary, and at a cost, considering the different standards of living, which make automobile driving in Europe almost a rarity as compared with this country.

It is far from surprising, therefore, to find, in the last few years, intense earnest efforts being made, especially in Germany and France, to produce a cheap motor fuel. As the most promising, if not the only, raw material, the workers in this field have naturally turned to coal and to gases derived from coal as the starting points for their synthetic fuel syntheses. Some of these efforts have already met with a surprising degree of success, and will be briefly described.

Methane From Carbon Monoxide

This represents one of the earliest laboratory attempts to prepare a paraffin hydrocarbon from a coal product [1]. In recent years the matter has been reinvestigated and numerous patents [3, 4, 5] have been taken out for the production of this product. The carbon monoxide is treated with hydrogen under pressure, in the presence of an iron catalyst. The reaction consists chiefly of the reduction of carbon monoxide, thus: $2CO + 2H_2 = CO_2 + CH_4$. One mole each of carbon dioxide and methane being formed. Methane is not formed to any great extent except under pressure. At a pressure of only two atmospheres, about 35 lbs., 10% of methane is produced. The optimum conditions appear to be a temperature of 400 to 430 degrees C., and a pressure in the neighborhood of 100 atmospheres.

Methanol From Water Gas

The production of methyl alcohol from carbon monoxide and hydrogen is of much greater economic importance. This process has been in commercial operation in Germany for nearly two years. The names of Fischer, Patart and Audibert are prominent in this development [6, 7]. The synthesis is performed under pressure in the presence of a catalyst and is similar to the method of producing ammonia from hydrogen and nitrogen.

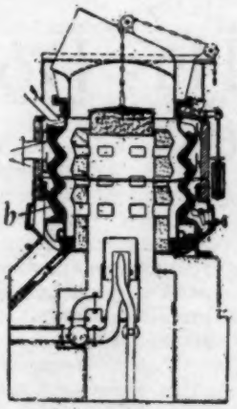
The starting material, water gas, is a mixture of approximately equal parts of carbon monoxide and hydrogen. This mixture is heated in an autoclave by means of electricity to a temperature of 400 to 420 degrees C. at a pressure between 150 and 250 atmospheres. Under these optimum conditions, conversion into methanol to the extent of 80% has been accomplished. The heating elements of the electrical resistances are composed of alloys other than those of iron or nickel, as the presence of these metals causes the conversion of the carbon monoxide into carbon dioxide, decomposition of the reaction mixture into methane and free carbon and formation of higher alcohols and organic acids. The catalysts used consist of oxides of one or more metals which

(Continued on page 18)

PROGRESS IN GAS TECHNOLOGY
Domestic and Foreign

VERTICAL CARBONIZING FURNACE

THE illustration shows a type of vertical carbonizing furnace which is patented in German Patent No. 430,365. The furnace is designed for the treatment of bituminous combustible matter and is characterized in possessing a heating surface b which is arranged vertically and which has



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conical shaped lateral parts. The heating of the apparatus is effected internally. The combustible alongside the heating walls is guided by the sliding surfaces c and openings are thus afforded through which the gas is allowed to escape.

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HYGROSCOPICITY OF AMMONIUM SULPHATE

SULPHATE of ammonia made in the same plant and under the same conditions, being dried in the same drier, showed varying degrees of hygroscopicity. An investigation was made to determine the causes of this phenomenon. A careful investigation of the conditions under which the ammonium sulphate was made and dried and then exposed to air containing moisture indicated that the trouble lay with some impurity contained in the salt. The importance of the presence of pyrydine sulphate in this connection was clearly indicated. The sulphates were therefore examined for their pyridine content. It was found that the presence of pyridine sulphate was highly important from this standpoint.

The conclusions that were drawn from these experiments were as follows:

1. The presence of pyridine sulphate as an impurity on the face of the ammonium sulphate crystals raises considerably the hygroscopicity of the salt.
2. The amount of pyridine sulphate present necessary to produce this effect is very small.
3. The effect is roughly proportional to the amount of pyridine sulphate present.
4. The effect may be due to the pyridine sulphate itself or to the trace of residual sulphuric acid left as a result of the dissociation and decomposition of that substance in the process of drying the contaminated ammonium sulphate.
5. The effect can be minimized to a considerable degree by drying the ammonium sulphate crystals in the presence of free ammonia gas, which may act either by displacing the pyridine or by neutralizing the trace of free residual sulphuric acid.
6. The containers used to store and transport the sulphate have little or no effect on its hygroscopicity.

Gas Journal, May 4, 1927, pages 291-4.

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GASES FROM PULVERIZED COAL

IN producing a mixed gas from pulverized coal the latter is fed through a tube c into an externally heated retort a. Superheated steam is admitted through pipes d and the coal first parts with its gas and then combines with the steam to form water gas. The latter passes together with the distillates

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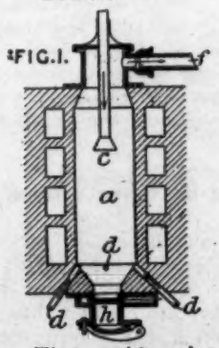

to an outlet f. The residue is then discharged through a valve h. The internal cross-section of the retort may be enlarged near the supply tube c and the pulverized coal may be blown into the retort under pressure by the gaseous mixture obtained in the process or by a similar gas. British Patent No. 266,354.

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MAKING WATER GAS

A PROCESS is described for making water gas which consists in blowing air as well as steam through the granular coal in such a manner

that the coal is made to assume a whirling motion both during the blow as well as during the run of the apparatus. The ash is thereby partially carried along by the blow gases and partially by the water gas, which is often found to contain a considerable amount of dust. A water gas that does not contain such ash is obtained by causing the coal to assume a whirling motion during the blasting of the generator by means of the current of air that is blown through it, but the steam is blown through the generator in such a manner that the coal is not caused to assume this peculiar motion.

Inasmuch as the incandescent coal is caused to assume this whirling motion without any difficulty at all by blowing at the lower end of the generator only a very small amount of steam, it is advisable to blow the steam into the apparatus and through the bed of coal from the top downwards. The coal cannot be set into whirling motion even when large amounts of steam are blown through the bed in this manner, and the ash that is formed during the gas making process from the coal cannot be carried along by the particles of coal. The result then is that a water gas is obtained which is free from dust. If the gas is allowed to flow directly out of the generator through a large opening, for example at the rate of three cubic meters per minute, and if it is ignited, then it burns with an almost colorless flame, while otherwise the flame will be an intense yellowish color and the non-burning gas will be visible to the naked eye. The composition of the water gas is the same as that which is given in the main patent on this process (German Patent 437,970). This improvement is patented in German Patent No. 438,843.

What Simplification Has Done for Our Business

Richard E. Pierce

The installation of the so-called bookless bookkeeping system into public utility offices has been a big step toward simplified accountancy.

Bookless bookkeeping no doubt sounds to the layman of today like the words "horseless carriage" did to the people of the eighteenth century. Yet we have seen that horseless carriage successfully replace the horse-drawn vehicle, and the future no doubt will see the so-called "bookless bookkeeping" replace the "ledger system" in modern business.

The system is operating now in many of our offices and in every instance it has proved to be far more efficient than the old method, and as time goes on the bookkeeping without books system will find its way into many business houses, especially public utility companies where the "stub plan" first originated.

Should Be Given a Long Trial

It is to be expected that an accounting revision of this magnitude will meet with difficulties and it is only fair to give it a long term trial before condemning a system which has been carefully worked out to meet the requirements of accurate and simplified accounting. There were those who were a bit fearsome as to the results of such a system, but, after trying it out in their own business, are convinced that the system is sound and that it is here to stay.

Under the stub plan the monthly bills consist of two stubs instead of one, the extra stub is detached before the bill is sent out and constitutes the ledger record; the other stub serves as a cash stub and upon payment of bill is attached to the corresponding ledger stub, and both stubs are filed as "paid-up charges"; the remaining unpaid stubs remain in the file and represent the delinquent accounts or unpaid balance.

With the stub system in operation the meter book becomes one of the most important office records and should be treated as such by the meter-reading department and the billing clerks. The information on the meter sheet should be complete in every detail, accurate information regarding each meter should appear on this sheet and the meter readers should use great care to have the readings entered correctly and the billing clerks should ink over the pencil readings, thus forming a more permanent record.

All Departments Benefit

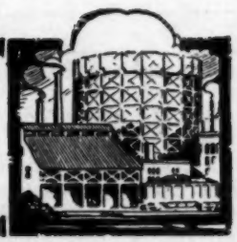
Every department is benefited by this simplified system. It is not necessary to go through a volume of ledger cards or sheets in order to determine the unpaid accounts. The collectors are aided by having the delinquent accounts separated at all times from the paid-up accounts and always available for inspection. The bookkeeping department finds that balancing is simpler and more accurate, due to the fact that the original records are used and errors made in transferring of figures under the old plan are eliminated.

What simplification has done for our business it can do for others. This bookless bookkeeping is not only adapted to our business, which is the gas and electric business, but it can be used in all lines of business.

The six outstanding reasons why this simplified plan is meeting with such success are as follows:

1. Elimination of duplicated effort.
2. Decrease of unit cost.
3. Increase of accuracy in office procedure.
4. The simplicity of the system makes it accessible to employees not connected with the accounting department.
5. Increase of efficiency in collections.

NEWS OF THE GAS INDUSTRY



Gas Men Hit Electricity

Pacific Coast Association Delegates Discuss Rivals' Appliances

Spokane.—Inroads by electric ranges into the domestic cooking patronage of the artificial gas companies formed the chief topic of discssion at the annual Northwest regional conference of the Pacific Coast Gas Association at the Davenport Hotel. All agreed that the electric range was the chief competitor of the gas range and that serious inroads into the gas business for domestic cooking had been made by the electric range in the states of the Northwest. California men said that it was not a problem in that state, in which a year ago there were about eleven gas ranges to one electric range.

Like Bobbed Hair

During the discussion some hard things were said about the electric range, which was charged with many shortcomings, such as lack of durability, high cost of operation, odor in the oven. One speaker called the electric range a fad, comparable to bobbed hair among women, and predicted that it would eventually pass, as will bobbed hair. Another said that the impression had gone abroad that a certain amount of "class" attached to cooking with an electric range that did not exist with a gas range. This feeling, it was stated, existed with people of the middle class, while the substantial, well-to-do customers of the gas companies are staying with the gas range.

It was agreed that the best way to meet this competition was to go after this business as the electric men do, by offering equal inducements to the public. It was agreed that the manufacturer of electric cooking equipment had outdistanced the gas range makers for a time, but the gas range men have now returned to the battle with gas burning appliances having all conveniences offered by the electric ranges.

W. S. Yard, vice-president of the Pacific Gas and Electric Company, and president of the Pacific Gas Association, was the chairman of the conference. Clifford Johnstone of San Francisco, is the executive secretary. Ninety representatives of the gas industry from Washington, Oregon, Montana, Idaho and California were present.

Dinner Dance Gay

The visitors were guests at a dinner dance and entertainment in the Elizabethan room at the Davenport. Some informal talks were made and specialty numbers given by entertainers preceding the dance.

M. C. Hancock, manager of the Washington Gas and Electric Company. Aberdeen, charged unfair competition by electric companies in securing apartment house business. "It seems to us from this that the electric companies, or at least, some of them, are willing to pay almost any price to get the electric cooking, as it is an off-peak load and very desirable business," he said. "If the gas companies wish to continue to sell gas to the apartment house owner, where such conditions exist as given above, we believe that we must meet the situation as we find it and be prepared to give the ranges to the owners if necessary. The apartment house business is good business, as when the ranges are once installed it is a steady revenue."

J. H. Gumz, of the Pacific Gas and Electric Company, San Francisco, said that until a little over a year ago California had but 21,000 electric ranges, as compared with 1,200,000 gas users. The ratio of electric range installation had increased during the last year, however, when 10,000 were installed. In one city cited by him he said the electric range installation in the last year in apartments had been 50 per cent of the gas ranges. Mr. Gumz said electric ranges are sold by the furniture dealers and now by the mail order houses. He said electric men "are now putting in their best licks to get electric ranges in new homes and letting the gas men hold onto the old buildings." It was up to the gas men to meet electric competition by selling just as good or better equipment and seeing that the customer is satisfied after he buys one.

Miss Lutie V. Burkholder, of Los Angeles, spoke on "What the Consumer Expects from the Home Service Department of a Gas Company." She gave her experience in handling a woman patron with a new gas range with which she was having trouble. When the woman was educated as to the proper use of the range, she became a booster instead of a complaining patron.

Unparalleled in Country

President Yard said the situation in the Pacific Northwest as to the use of the electric range "is without parallel in the country." The electric range was not affecting business in his territory, he said.

James L. Stone, vice-president and general manager of the Spokane Gas and Fuel Company, paid his competitor, the Washington Water Power Company, a compliment when he said it was a fair competitor and never resorted to underhanded methods to knock out a gas user. In the same way, he said, he had instructed his men soliciting new business to be fair

with their electric competitor and stick to the facts.

A. H. Sikes, manager of the Great Falls Gas Company, told of his experience in bucking the competition of the Montana Power Company. He said he found a lot of misapprehension and misinformation as to gas as a competitive fuel with electricity and that this had to be corrected. He then began a concerted campaign of publicity, working through newspaper advertising, circulars, women's clubs and the schools. This has resulted, he said, in a changed situation until the gas range installations in Great Falls are now more numerous than electric ranges.

* * *

Regional Sales Conference at Lake Mohonk Largely Attended—Papers of Interest Presented

The fourth regional sales conference of the American Gas Association, held at Lake Mohonk Mountain House May 26 to 28, was well attended and a number of papers of immediate value and interest to gas men were presented.

In the neighborhood of 300 were in attendance and a free discussion of the papers was productive of much worth-while information to those present.

The subjects dealt with in the papers included water heating, salesmen's compensation, the training of salesmen, development of growing territory, home service, gas refrigeration, cooking, fireplace and house heating, incineration and market surveys.

The papers were read during the morning sessions and at night there ensued a round table discussion of the points brought out in the papers.

* * *

Heads Gas Company

Harrisburg, Pa.—Luther S. Williams, vice-president and general manager of the Harrisburg Gas Company, was elected president of that company at a recent meeting of the board of directors.

Convention Calendar

June

16-17—Canadian Gas Association. Annual convention, King Edward Hotel, Toronto, Canada. G. W. Allen, secretary-treasurer, Toronto.

21-22—Empire State Gas and Electric Association. Annual meeting, Commercial Section, Elmira, N. Y.

20-2—Second Short Course Industrial Gas Engineering, University of Illinois, Urbana, Ill. Charles Greenleaf, chairman, 325 Peoples Gas Building, Chicago, Ill.

July

5-7—Michigan Gas Association. Annual convention, Grand Hotel, Mackinac Island, Mich. Albert G. Schroeder, secretary-treasurer, Grand Rapids, Mich.

Gas Company Extending Mains in South District

Meriden.—The Wallingford Gas Light Company is preparing to extend the system of gas mains in the southern part of the borough, at an estimated cost of $12,000, it has been announced by Edward M. Addis, president of the company. An agreement with the New Haven Railroad Company for the laying of a gas main over the Dudley Avenue bridge will be formulated and when completed excavation work will be started.

* * *

ROBBINSDALE GAS SURVEY ORDERED

Work Soon to Be Started, Rufus R. Rand, Jr., Announces

Minneapolis.—A personal survey of the village of Robbinsdale by the engineers of the Minneapolis Gas Light Company will be begun, it has been announced by Rufus R. Rand, Jr., vice-president of the company. A petition signed by 607 people of Robbinsdale was presented to Mr. Rand, but owing to the scattered location of the prospective users it was found necessary to conduct another survey, Mr. Rand said.

Work will be begun laying mains as soon as the time warrants.

WASKOM AREA DUE FOR INCREASED PLAY

Magnolia Is Completing 16-Inch Gas Line to Dallas

Completion of the Magnolia Gas Company's 16-inch line from Latex, on the Texas-Louisiana border, to Dallas and Fort Worth is the occasion for a quickening of activities in the Waskom gas field just becoming apparent.

Completion of the $12,000,000 project is scheduled for July 1, and the drilling just beginning and included in the next three months' program is being done in advance so as to have ample gas on hand to meet the demand for 50,000,000 to 75,000,000 feet daily.

Among other wells drilling and getting under way are two by S. A. Hardy, trustee, and two by State Line Oil and Gas Company. One of the four is in the new territory north of Greenwood, the other three in Waskom gas field proper. Hardy, trustee, has six-inch casing cemented in No. 2 Thigpen-Herold in 26-18-16, Caddo Parish, and J. M. Bryson No. 1 on the E. Pollock survey is rigging up.

State Line Oil and Gas Company is rigging up No. 3 Bryson and No. 2 Albany estate, both on the T. D. Wilson survey.

* * *

FLUSHING GETS GAS REDUCTION

New Five-Year Contract Drawn Up by Town with the Ohio Fuel and Gas Co.

Wheeling, W. Va.—The village of Flushing is to receive a gas reduction from the Ohio Fuel and Gas Company, according to a new five-year contract which has been drawn up in Pittsburgh, Pa. This announcement was made by D. Allen Bond, City Solicitor of Flushing.

The new rate is a reduction from $2 and $1.10 per thousand feet. For the first two years the new rate will be similar to the rate for St. Clairsville, $1 for the first thousand and 65 cents per thousand thereafter. One dollar for the first thousand and 75 cents for all thereafter will be the rate for the last three years.

Annual Industrial Gas Course at Massachusetts Institute of Technology

New York.—The sixth annual industrial gas course, sponsored by the New England Gas Association with the co-operation of the American Gas Association, is to be offered at the Massachusetts Institute of Technology, Cambridge, Mass., June 13 to 24.

It is the purpose of this course, conducted through the assistance of Prof. Gordon B. Wilkes, of M. I. T., to present to the engineers of the industry a rapid review of the basic principles which should determine the selection of appliances. The students will be required to work out specific gas application problems. In addition they will have to present the data gathered in the form of a report. The work will be handled the same as that of all courses at the Institute, the students receiving grades for the answers and report.

Numerous pieces of gas equipment in the gas laboratory will be at the students' disposal for tests, etc.

This course is another step forward in disseminating practical knowledge of a technical nature to those interested in the important business of selling gas for industrial heating, according to John J. Quinn, of Quincy, Mass., who is chairman of the industrial gas educational committee of the New England Gas Association.

Theory of Combustion to Be Reviewed

"By enrolling, the industrial gas engineer or salesman will have the opportunity for a sufficient review of the theory of combustion and its allied subjects so as to be able better to choose with accuracy the appliances best suited to the problems that are daily encountered," says Mr. Quinn.

"The establishment of this course has not only directly benefited the men who have participated, but has helped the industry by contact with the instructing staff and student body.

"It is agreed that properly educated personnel is essential to the industry's advancement. This course is a very practical means to the desired end. It commends the support of the industry it has been designed to serve. With the close contact that has now been brought about between the industrial educational committee of the American Gas Association and the similar committee of the New England Gas Association, the efforts of both associations have been co-ordinated and double opportunity provided. Executive officers, department managers and industrial men will support and aid in the profitable development of this industry by providing promptly the necessary enrollment that this course earnestly merits."

The committee in charge of the course has recommended that a reading of the A. G. A. industrial gas series booklet "Combustion" be made by each student prior to the opening of the course.

The committee having charge of the course is as follows: John J. Quinn, Quincy, Mass.; H. Vittinghoff, R. J. Phelon, Prof. G. B. Wilkes, J. J. Winn, Jr., and R. L. Gifford, secretary-treasurer.

Program

The program for the course is as follows:

June 13

WELCOME. J. J. Quinn, Educational Committee Chairman, N. E. G. A., Citizens Gas Light Company, Quincy, Mass.

REPORT WRITING. Professor Winnard Prescott.

COMBUSTION — HEAT AND ITS MEASUREMENT. Professor G. B. Wilkes.

Discussion.

June 14

CORRECTIONS FOR TEMPERATURE AND PRESSURE.

THE CHEMISTRY OF COMBUSTION. Professor G. B. Wilkes.

Discussion and Problems.

June 15

CALORIMETRY. Professor G. B. Wilkes.

Discussion.

HEAT TREATMENT. Professor Robert S. Williams.

Discussion.

June 16

THERMAL CAPACITY AND FLAME TEMPERATURE. Professor G. B. Wilkes.

Discussion.

ANALYSIS OF FURNACE CASES.

RECUPERATION AND REGENERATION. Professor G. B. Wilkes.

Discussion.

June 17

FULL COMPARISONS AND FACTORS AFFECTING THE UTILIZATION OF GASEOUS FUELS. Professor G. B. Wilkes.

Discussion.

HEAT TREATMENT. Professor Robert S. Williams.

Discussion.

June 18

PROCESS PROBLEM. A special problem lecture on the practical work of the industrial engineer. R. L. Gifford, Pawtucket Gas Company, Pawtucket, R. I.

June 20

REPORT WRITING. Professor Winnard Prescott. Discussion.

LOW TEMPERATURE HEAT APPLICATION. M. B. Webber, engineer and assistant treasurer, Athol Gas & Electric Company, Boston, Mass.

June 21

HEAT TRANSFER. Professor G. B. Wilkes.

HEAT TRANSFER AND REFRACTORIES. Professor G. B. Wilkes.

June 22

TEMPERATURE CONTROLS. A. Frydendall, Peoples Gas Light & Coke Co., Chicago, Ill.

FURNACE DESIGN. Joseph Jares, Brooklyn Union Gas Company.

June 23

COMBUSTION SYSTEMS. A. Frydendall, Peoples Gas Light & Coke Co., Chicago, Ill.

June 24

REFRIGERATION. H. D. Valentine, Central Hudson Gas & Electric Corp., Poughkeepsie, N. Y.

GROUP PHOTOGRAPH.

ANNUAL MEETING, INDUSTRIAL DIVISION NEW ENGLAND GAS ASSOCIATION.

ADDRESS. J. P. Leinroth, Chairman, A. G. A. Industrial Gas Section Committee on Education of Personnel.

Sitting Atop Coal Strike

Situation Discussed by Gas Light Company Superintendent at Bridgeton Rotary Club

Bridgeton, N. J.—"We are sitting on top of a coal strike and the public scarcely knows there is a strike on," said Jacob B. Jones, superintendent of the Bridgeton Gas Light Company, at the stated meeting of the Rotary Club.

Declaring that he believes the strike which began April 1st the most serious ever in the bituminous field, Mr. Jones went on to discuss the situation with which he must keep in close touch by reason of the fact that coal is the raw material of the gas light company, and gave figures which have just been released by the U. S. Bureau of Mines at Washington.

Many Tons

It appears that there is more coal put out of mines than at any other time in history. The figures show there was above ground 75 million tons and enough rolling and standing (in storage) to total 80 or 85 million tons out of the mines. At the beginning of the prior strike in 1922 there was about 63 million tons above ground and little in transit.

The estimate of April 1, this year, of the amount on hand by manufacturers, railroads and utilities was as follows: Manufacturers, 50 days' supply; railroads, 70 days', and utilities, 77 days' supply. It appears to be the strategy this time to have used up the coal above ground before the public becomes fully aware of the situation, and Mr. Jones said he felt there could be no harm done by those who are in touch with conditions letting others know the results of their observations. At the present rate, it is predicted, the supply will be well used up by the 15th of September.

Taking up the local situation, Mr. Jones said the gas company has a supply for about 100 days, which is considerably above the average. The policy here is to maintain the largest storage possible for the protection of the public. While this means a cost of about $40 or $45 a day for insurance, handling charges, etc., an effort is being made to maintain the present storage.

Mr. Jones did not speak from the viewpoint of an alarmist, but rather from the standpoint of preparations.

* * *

Reduction in Gas Rates to Follow Acquisition of Stock

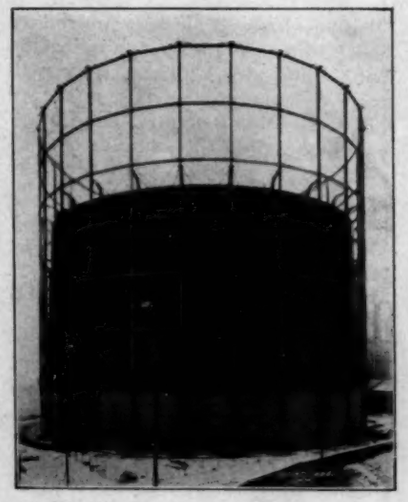
Albany.—Material reduction in gas rates in Fulton, Oswego County, will follow the action by the Public Service Commission today in authorizing the Great Lakes Utilities Corporation to acquire the outstanding common stock of the Fulton Fuel and Light Company.

The maximum rate now charged in Fulton by the Fulton Fuel & Light Company is $2.75 a thousand cubic feet, with an average rate of $2.39 per 1000 cu. ft. It was stated at the hearing before the commission that the new company will establish a rate of not to exceed $1.75 per 1000 cu. ft. and an average rate not to exceed $1.50 per 1000 cu. ft. This reduction is to be accomplished by replacing certain antiquated plant equipment and apparatus with more modern equipment and apparatus, thereby increasing efficiency and reducing the cost of manufacture of gas. The Fulton Company is to remain as an operating company and will continue under the jurisdiction of the Commission, but the changes to be made in the plant will be financed by the Great Lakes Company.

"Without passing upon the value of the stock to be acquired," says Commissioner Brewster in a memorandum approved by the Commission, "or the value of the assets of the Fulton Fuel and Light Company, the purchase appears to be in the interest of the gas consumer, customers of the Fulton Fuel & Light Co., and meets the approval of the Mayor of Fulton as their representative."

Stacey Bros. Awarded Contract for 10,000,000 Cu. Ft. Holder to Be Erected in Long Beach, Cal.

The Stacey Bros. Gas Construction Company of Cincinnati, Ohio, have recently been awarded contract by the City of Long Beach, Cal., for the complete erection, including foundation, of a standard 10,000,000 cu. ft. telescopic water tank gas holder, similar in every respect to the 10,000,000 cu. ft. holder which they erected at Buffalo, N. Y., for the Iroquois Gas Corporation during 1926.



Holder Erected in Buffalo

The Stacey Bros. Company made an enviable record both in workmanship and speed of construction on the Buffalo holder, and as work at Long Beach has already started, it is anticipated that they will improve on the record they made at Buffalo.

The specifications on the Long Beach holder are, for practical purposes, exactly the same as those of the Buffalo holder, and in addition several new and advanced features of design and construction are employed. The Long Beach holder is approximately 270 feet in diameter and nearly 250 feet high, and the plates in the bottom rings of tank well over two inches in thickness. Nearly 5,000 tons of steel are involved in this job.